

DESCRIPTION OF THE COURSES

- Course code: FZP1008
- Course title: General Physics – G2-external
- Language of the lecturer: Polish or English

<i>Course form</i>	<i>Lecture</i>	<i>Classes</i>	<i>Laboratory</i>	<i>Project</i>	<i>Seminar</i>
<i>Number of hours/week*</i>	2		1		
<i>Number of hours/semester*</i>	22		11		
<i>Form of the course completion</i>					
<i>ECTS credits</i>	3		2		
<i>Total Student's Workload</i>					

- Level of the course (basic/advanced): basic
- Prerequisites: none
- Name, first name and degree of the lecturer/supervisor: lecturers from Institute of Physics
- Names, first names and degrees of the team's members:
- Year:.....II..... Semester:.....III.....
- Type of the course (obligatory/optional): obligatory
- Aims of the course (effects of the course): to broaden student's knowledge about the laws governing natural phenomena, solving technical problem using physical laws
- Form of the teaching (traditional/e-learning): traditional
- Course description:

Lecture cover the fundamentals of electrodynamics, optics, and modern physics .

1) Classes:.

- Lecture:

<i>Particular lectures contents</i>	<i>Number of hours</i>
1. Electric Field : electric field, Gauss's law, electric potential, work in electric field,	2
2. Electric Current: simple electric circuits, electromotive force	2
3. Magnetic Field: magnetic field vector, magnetic flux, motion of charged particle in magnetic field, magnetic force, magnetic field of current element	2
4. Electromagnetic Induction: Faraday's law, self-inductance	2
5. Interference and Diffraction: two-slit interference pattern, diffraction from single slit, multi splits, interference in thin films, diffraction grating, X-ray diffraction,	2
6. Relativity: The Lorentz Transformations, relativity of length and time, The Time Paradox, relativistic dynamics, mass and energy	2
7. Elements o quantum theory of electromagnetic waves: the photoelectric effect, The Compton's scattering	2
8. Basis of quantum mechanics : De Broglie waves, The Schrödinger Wave Equation, energy and angular momentum quantization,	2
9. The Physics of atom: atomic structure, periodic table, spin, lasers	2
10. Nuclear Physics: radioactivity, fission and fusion, nuclear	2

reactions, nuclear fission reactors	
11. Elements of High – Energy Physics : The Standard Model, the evolution of the Universe	2

- Classes – the contents:

Seminars – the contents:

- Laboratory – the contents:
- Project – the contents:
- Basic literature:

a) D. Halliday, R. Resnick, J.Walker: *Podstawy Fizyki*, tomy 3-5, Wydawnictwa Naukowe PWN, Warszawa 2003.

b) K. Jezierski, B. Kołodko, K. Sierański: *Zadania z rozwiązaniami. Część I*, wydawnictwo Scripta

- Additional literature:

a) I.W. Sawieliew, Wykłady z Fizyki tom 2 i 3 , Wydawnictwa Naukowe PWN, Warszawa, 2003

b) K.Sierański, K.Jezierski, B.Kołodko – *Fizyka-Wzory i Prawa z objaśnieniami cz.II i III*, wydawnictwo Scripta

- Conditions of the course acceptance/creditation:

* - depending on a system of studies